STUDY OF DISTRIBUTION OF CAFFEINE AND METABOLITES IN TISSUE SUBCELLULAR FRACTIONS AFTER ADMINISTRATION OF CAFFEINE AND TEA INFUSION OF CAFFEINE

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The distribution of caffeine and its metabolites in the subcellular fractions of liver, muscle, kidney and testes were studied after administration of 1-methyl C^{14}-caffeine and the tea infusion of 1-methyl C^{14}-caffeine to male Sprague-Dawley rats (body weight 200±10).

The tissues were collected at 1h, 2h, 3h and 6h after administration (100mg/Kg body weight) of pure caffeine or caffeine with tea. Samples were homogenized in sucrose (0.32M) buffered with phosphate (0.1M, pH 7.2). Aliquotes were subjected to subcellular fractionation. Nuclear (1000gx10min), mitochondrial (12,000gx60min) and microsomal (105,000gx120min) pelletes were reconstituted in sucrose (0.32M) and counted for radioactivity. Aliquotes of soluble fraction were also counted for radioactivity.

Caffeine and its metabolites penetrated very rapidly into cytoplasm of liver (>75%) kidney (>75%) testes (>85%) and muscle (>75%) but did not accumulate in the mitochondrial or microsomal compartments either when administered as pure caffeine or as a tea infusion of caffeine.

Ratio of the percentage radioactivity and the percentage of protein content of each fraction was calculated. The results further confirmed that there was no specific accumulation (<1) of caffeine or its metabolites in subcellular organelles. The major proportion of the administered radioactivity was associated with the cytosol (>1).